Subject: SIMSS/MPS-Aura Engineering Release 3.6 Delivery for ETS
Date: Fri, 13 Jun 2003 18:03:39 -0400
From: "Estelle Noone" <enoone@csc.com>
To: Willie Fuller <wfuller@pop500.gsfc.nasa.gov>

Willie,

We are pleased to deliver Release 3.6 of the ETS Multimode Portable Simulator (MPS) for Aura. This engineering release delivery contains code corrections to the Scenario module to fix problems discovered during testing of Releases 3.4 and 3.5. These problems were recorded in Discrepancy Reports (DRs) ETS0476 and ETS0477. While most of the reported and discovered problems have been fixed, there are still some remaining conditions that we will resolve in a subsequent release. This release also includes changes to answer several DRs, as documented in Attachment D.

There are eight attachments to this letter.

Attachment A describes the capabilities included in this release.
Attachment B describes installation instructions for this release.
Attachment C describes special operating instructions for this release.
Attachment D contains the resolved DR descriptions
Attachment E contains the system limitations.
Attachment F contains an updated release history summary matrix.
Attachment G contains a listing of all the external documentation used in producing this release.
Attachment H contains an updated Mission Systems Configuration Management (MSCM) form.

The updated software executable modules are being delivered on CD-ROM. Two copies of the CD will be given to Guy Cordier, who will forward one copy to Raytheon at Denver and will use the other for installation on the MPS simulator PCs in Building 32.

The updated software is also being installed on the serial card-equipped PCs in the Bldg 25 Simulations Operations Center, in the event that any of those units are needed to support upcoming Aura data flows.

The System User's Guide is being updated to include the new capabilities.

If you have any questions about this delivery, please do not hesitate to contact me or Ernest.

Ernest Quintin
301-805-3649

CC:
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Attachment A – Summary of Operational Changes

Operational Capabilities of SIMSS/MPS-Aura Release 3.6

New or modified capabilities with this release are noted in **Bold**.

Telemetry:

- Transmit telemetry in IP or Serial (clock/data) mode
- Pack telemetry packets and CLCWs into CADUs when in Serial mode
- Generate one stream of CADUs when in Serial mode
- Generate one stream of telemetry formatted as EDUs when in IP mode
- Start or stop one telemetry stream
- Generate telemetry packets from information contained in the PDB
- Maintain telemetry nodes from information contained in the PDB
- Populate telemetry packets with data values from information contained in the PDB
- Generate correct secondary headers for SC, GIRD, and SUROM-TIE (no secondary header) telemetry packets using information from the PDB
- Generate instrument telemetry packets using secondary key information from the PDB
- Display EDU data when in IP mode
- Display CADU data when in Serial mode
- Set values into telemetry points by mnemonic
- Display telemetry node values by mnemonic
- Convert telemetry values to Engineering Units (EU) for display using information from the PDB
- Accept operator-entered telemetry values in EU and convert to Raw Counts for inclusion in telemetry packets
- Create a checkpoint file of all telemetry mnemonic values at any time under user control.
- Maintain consistency between “mom-kid” telemetry points
- Reset packet count for the telemetry stream
- Static packet data can be overwritten (by byte location) and by modification of telemetry mnemonic
- Incrementing packet sequence counters per APID
- Generation of individual APIDs can be inhibited
- Telemetry logs will be created (viewable by offline utility)
- Packet Headers and Packet Data are updated
- Packet data can be shown in hexadecimal or octal format and addressed in hexadecimal or decimal form
- Packet Sequence Counters can be reset
- Packet Sequence Counters can be modified
- Packet Version field can be modified
- Packet APID field can be modified
- Packet Type field can be modified

- Packet Secondary Header Flag field can be modified
- Packet Length field can be modified
- CCSDS Unsegmented TimeCode (CUC) can be modified
- Packet rate may be controlled
- CLCW transmitted via EDUs when in IP mode
- IP packets are transmitted with variable lengths
- CLCW can be overridden by the operator
- Transmission of CLCW can be inhibited when in IP mode
- Scenario file (script) capability to set telemetry nodes and buffers
- Set telemetry data values in response to spacecraft commands received (end-item verification)
- Set initial telemetry data values at initialization
- Allow simultaneous display and set of multiple telemetry container items via GUI screens
- Simulate spacecraft memory dumps
- Use the PDB telemetry state text file to locate end-item verifier values
- Maintain and update telemetry data values in APID 1000
- Telemetry parameters may be set and viewed by Parameter ID
- CLCW Transmit Start and Stop is coupled to H/K Telemetry Start and Stop
- Telemetry values may be set using simple expressions
- Telemetry values may be set using trigonometric expressions
- Telemetry values may be set using Boolean expressions
- Telemetry values may be set to other telemetry mnemonic values
- Telemetry values may be saved in intermediate variables for later use
- TES Segmented Packets are emulated
- CLCW Transmit rate may be set by the operator
- Telemetry data values are validated for fit into packet space
- Current enable status and transmit rate for all APIDs is viewable via status display
- vcProcessor module discards VC63 VCDUs when creating files for playback
- The PDB Red/Yellow Limits file is used to refine initial telemetry values.
- Signed telemetry data values are validated as one’s and two’s complement integers upon user input, as appropriate.
- Displays of telemetry and command container item names may be saved and restored.
- The VCDU Sequence Counter field occupies 32 bits in APID 1000.
- Direct ingest of telemetry-related PDB flat files
- Interface with a 1553 Bus. Transmit telemetry packets over the 1553 Bus.
- Accept telemetry and CLCW packets from an external source in IP mode
- Update telemetry parameter values to reflect data received from the external source
- Update CLCW field values to reflect data received from the external source.
- Forward, via IP interface, the telemetry and CLCW packets received from the external source.
- Modify telemetry parameter values and CLCW field values in externally received packets prior to re-transmission, in response to operator directive.

- Accept CADUs from an external source in serial mode
- Extract telemetry packets and CLCWs from externally received CADUs
- Pack externally received telemetry packets and CLCWs into CADUs and forward via serial interface
- Preserve time in Secondary Headers of externally received telemetry packets OR replace with MPS-generated time.
- Support for operator entry of 1750A telemetry values as Engineering Units.

Command:

- Identify commands using information from the PDB
- Display event messages with command mnemonics and submnemonics
- Set telemetry points in response to commands received (end-item verification) using information from the PDB
- Recognize spacecraft Command Loads
- Display Command Load data
- Copy Command Load data to a Memory Dump buffer
- Inhibit the Command Load data copy facility via operator directive
- Validate checksums of received Command Loads
- Ingest type AD, BC, and BD commands
- Display Total CLTUs count
- Reset Total CLTUs count
- Display Rejected CLTUs count
- Reset Rejected CLTUs count
- Display Instrument commands count
- Reset Instrument commands count
- Display Spacecraft commands count
- Reset Spacecraft commands count
- Display BC commands count
- Reset BC commands count
- Display BD commands count
- Display current Spacecraft CLCW
- Update Spacecraft and instrument CLCW
- Display current Instrument CLCW
- Validate commands based on individual, all, or none of the following validation criteria: CLTU Start and Tail Sequences, BCH Error Code, Transfer Frame Header Fields, FARM (Valid Frame Sequence), User Command Packet Header
- Generate event messages based on ingest
- Log raw commands (viewable by offline utility)
- Display raw command in hexadecimal or octal format addressed in either hexadecimal or decimal fashion
- Display command packet headers for instrument commands
- Display command packet headers for spacecraft commands
- Update command accepted and rejected counters in telemetry

- Command submnemonics are saved in container items and may be viewed after command receipt
- Expected Spacecraft ID changed to CC Hex
- TES and OMI segmented commands are recognized.
- The Function Code is used to identify HIRDLS commands.
- The two's complement checksum of instrument commands is validated.
- Direct ingest of command-related PDB flat files
- Enable and disable automatic setting of end-item verifier telemetry points for commands received, in response to operator directive.
- Interface with a 1553 Bus. Receive command packets from the 1553 Bus.

Time:

- Maintain and update SC time (GIRD)
- Maintain and update GMT time
- Synchronize SC and GMT times
- Set SC time to time in externally received telemetry packets.
- Set SC time to time broadcast via the ETSF 1553 bus.

General:

- Control all simulator module functions via scenario scripts
- Selection of scenario scripts may be via operator type-in or via a file selection browse window
- Start scenario scripts in response to commands received
- Start a scenario script from a scenario script
- Execute multiple scenario scripts simultaneously
- Provide operator control of multiple scenario scripts started by the operator
- Save the last 10 operator directives
- Allow editing of saved operator directives before re-execution
- EDOS Service Header (ESH) fields may be viewed
- ESH field contents may be modified by the operator
- Validation of Command Data Block (CDB) header fields of commands received
- Modification of expected values of CDB header fields
- All viewable buffers may be displayed
- Addition, deletion, and modification of command end-item verifiers via SQL scripts
- Logs of commands received or telemetry transmitted may be retransmitted via IP output or Serial output
- Expected Spacecraft ID may be modified in EOSGS module
- CLCW ESH field contents may be modified by the operator
- Event messages to the screen may be inhibited or enabled by severity (color)

- Scenario scripts may contain IF-then-ELSE-ENDIF and WHILE-ENDWHILE conditional execution directives
- The Scenario module may interface with multiple modules
- The user may create a disk file giving the names of all running Scenario scripts at any time.
- The user may kill any or all running Scenario script(s) at any time.
- Intermediate variables A – Z permit saving values as real numbers – extended to all modules that accept directives
- Intermediate variables Aq – Zq permit saving values as long integers – extended to all modules that accept directives
- CREATE and DELETE directives permit the user to create temporary variables of Real type.
- The Serial Output module can accept directives from the operator or via a scenario script.
- The Event Message window has been separated from the project window and has been made resizable.
- Receipt of CADUs from a serial interface and extraction of telemetry packets is via the EOSXtract module.
- Interface with the 1553 Bus is via the E1553Bus module.
- Improved telemetry and command logging capability.
- Improved Event Message logging capability.
- **Project Save and Restore operations have been simplified.**
- **Individual modules may be given meaningful names in context.**
- **Projects may be given meaningful names.**
- **Server and Client DOS windows run minimized upon startup.**

Attachment B – Installation Instructions for SIMSS/MPS-Aura Release 3.6

This attachment contains the instructions for installing the PDB files and the SIMSS/MPS-Aura Release 3.6 Server and Client. The information presented in this attachment is divided into three major sections. The first section contains abbreviated installation instructions, the second contains a summary of the installation changes, and the third section contains detailed instructions for performing initial and subsequent installations.

The abbreviated installation instructions assume that the user will install or has already installed the recommended version of the Java Runtime Engine, JRE 1.2.2-Build 14.

The information presented in this attachment has been checked for accuracy by the independent test team.

B-1: Abbreviated Installation Instructions

These instructions are intended for the experienced user.

1. If not already done, install the Java Runtime Engine, Build 14, by selecting the file **jre-1_2_2_014-windows-i586.exe** in the root folder of the CD and following the prompts.
   IMPORTANT: When prompted for an installation folder, modify the path to **C:\jre1.2.2.** See the detailed instructions for more information.

2. Install the SIMSS/MPS-Aura Release 3.6 Client software by executing the **Setup.exe** program in the Client folder of the CD.

3. Install the SIMSS/MPS-Aura Release 3.6 Server software by executing the **Setup.exe** program in the Server folder of the CD.

4. If not previously done, create a folder under **D:\mps_pdb\AuraPDBs** to hold the Aura PDB source files. Copy the Aura PDB source files into this new folder. Twelve files are needed. See the list in Paragraph B-3.3 for the files to be copied.

5. When initializing the SIMSS/MPS-Aura simulator for the first time, all Projects needed must be built and saved.

B-2: Summary of changes

Patch Build 14 of Version 1.2.2 of the Java Runtime Engine (JRE) is being included with this delivery. Testing has shown that Sun Microsystems has fixed many of the resource leaks that were a problem with earlier versions of the JRE.

B-3: Detailed Installation Instructions

This is the complete procedure for performing an initial or subsequent installation of the SIMSS/MPS-Aura simulator Release 3.6, and associated software, data files, and COTS programs on a PC.

Materials Needed:

- One or more versions of the Aura Project Data Base (PDB)
- The CD containing the SIMSS/MPS-Aura Release 3.6 software

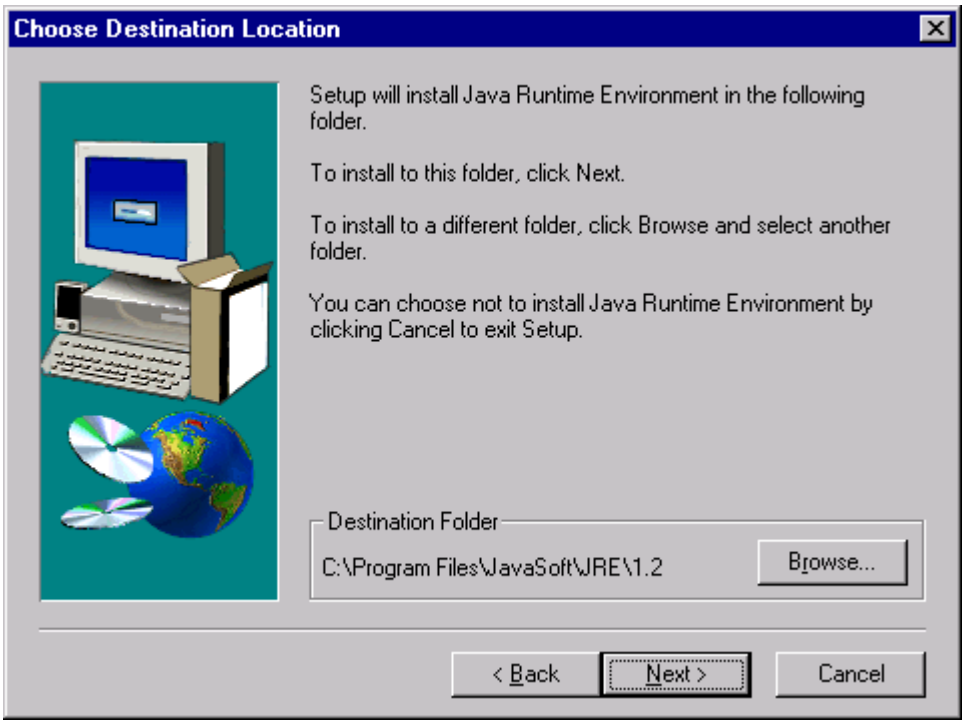
B-3.1: Java Runtime Engine Installation

Patch Build 14 of Version 1.2.2 of the JRE is included on the delivery CD. It is recommended that this version of Java be installed. If this version of Java is already installed then skip to Paragraph B-3.2.

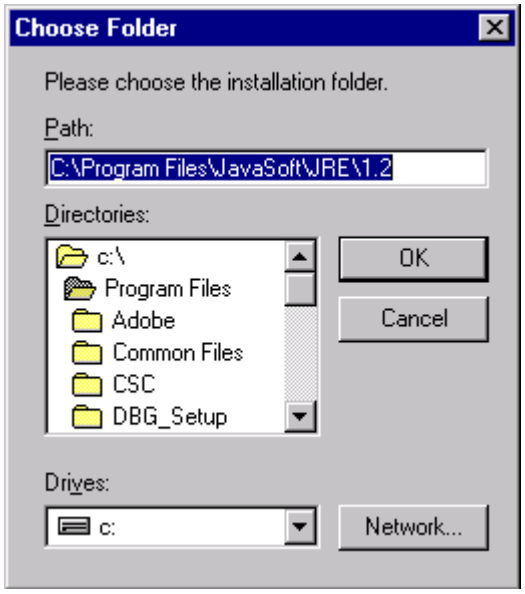
1. Insert the CD containing the SIMSS/MPS-Aura Release 3.6 into the CD drive and navigate to it using either Windows Explorer or My Computer.

2. Double-click on the file named **jre-1_2_2_014-windows-i586.exe** in the root folder. This will cause the Java Runtime Engine to be installed. When responding to the installation prompts, set the installation folder to **C:\jre1.2.2** by modifying the installation path as shown in the following pictures. This is necessary because the DOS program that starts the Client software cannot parse spaces in the path.

When the **"Choose Destination Location"** window appears, click on the Browse button.



The result will be the following **"Choose Folder"** browse window:



Modify the path in the **Choose Folder** browse window to be **C:\jre1.2.2** as shown in the following picture. Select **OK**, then select **NEXT** from the **Choose Destination Location** window.

B-3.2: Installation of the Aura Server and Client software

The steps in this paragraph cause the SIMSS/MPS-Aura Client and Server software to be installed on the PC.

1. Insert the delivery media into the appropriate drive.

2. To install the Aura Client:
   a) On the desktop, click on the Start button, and then select Run from the resulting menu.
   b) When the Run window appears select the Browse… button.
   c) From the Browse Window, select the Removable drive that contains the installation CD.
   d) Click on the Client folder.
   e) From within the Client folder, double click on the **Setup.exe** filename.
   f) A window with the title "Run Window" will appear. Click on the Okay button to proceed to the next step.
   g) The screen will be filled with an Aura Client background and a smaller window with the title "Welcome to Aura Client 3.6" will appear. Click on the Next button to proceed to the next step.
   h) Next, a window will show the completion status as the files are copied. When the copying is complete click on the Finish button to finish the installation.
   i) An Aura Client icon will now be installed on the desktop.

3. To install the Aura Server:

   a) On the desktop, click on the Start button, and then select Run from the resulting menu.
   b) When the Run window appears select the Browse… button.
   c) From the Browse Window, select the Removable drive that contains the installation CD.
   d) Click on the Server folder.
   e) From within the Server folder, double click on the **Setup.exe** filename.
   f) A window with the title "Run Window" will appear. Click on the Okay button to proceed to the next step.
   g) The screen will then be filled with an Aura Server background and a window with the title of "Welcome to Aura Server 3.6" will appear. Click the Next button to proceed.
   h) Next, a window will show the completion status as the files are copied. When the copying is complete click on the Finish button to finish the installation.
   i) An Aura Server icon will be installed on the desktop.

B-3.3: PDB Download

The next step is to copy the PDB onto the hard drive. You will need at least one version of the Aura PDB. The following PDB flat files are needed, where *xxxxxx* corresponds to the version portion of the filename:

cmd_desc_*xxxxxx*.pdb
cmd_fixdata_*xxxxxx*.pdb
cmd_parm_*xxxxxx*.pdb
cmd_vardata_*xxxxxx*.pdb
cmd_verify_*xxxxxx*.pdb
tlm_calcurve_*xxxxxx*.pdb
tlm_desc_*xxxxxx*.pdb
tlm_dstate_*xxxxxx*.pdb
tlm_packet_*xxxxxx*.pdb
tlm_parm_*xxxxxx*.pdb
tlm_polyconv_*xxxxxx*.pdb
tlm_rylim_*xxxxxx*.pdb

Add a folder to your chosen directory structure to hold the source files of the Aura PDB.

Copy the desired version of the PDB into the folder just created. If desired, more than one version of the PDB may be copied. Be sure to copy each version into its own folder.

Attachment C - Special Operating Instructions

This attachment contains new special operating instructions for SIMSS/MPS-Aura Release 3.6. The information presented in this attachment has been checked for accuracy by the independent test team.

A User's Guide is being updated to include the information presented in this section. When complete, the User's Guide will be available from the ETS home page at http://romulus.gsfc.nasa.gov/ETS .

DOS WINDOWS NOW RUN MINIMIZED

When the MPS-Aura simulator is initialized the Client and Server DOS windows now start as icons in the Task Bar. They may be restored for viewing by double-clicking the respective icon.

The Client and Server may be made to initialize as windows. Follow these steps to change their behavior.

- Right-click the icon on the desktop and select Properties from the drop-down menu
- Select the Shortcut tab
- Select "Normal Window" from within the drop-down menu to the right of "Run"
- Click Apply then Close

Scenario Module Changes

The "raise to a power" operator has been modified. Both '^' and '**' will work. E.g. the following expressions produce identical results.

```
Set AQ = 7^3
Set AQ = 7**3
```

Scenario Module Container Name Changes

In preparation for the new Scenario GUI, all of the Scenario module container item names have been changed to have the thread number at the end of the name. This means that the variables for requesting the echoing of directive lines and requesting additional debug information have changed for this release.

Old Name	**New Name**
Scenario<ID>DirMsg	ScenarioDirMsg<ID>
Scenario<ID>Debug	ScenarioDebug<ID>

Example: The debug variable for script 5 was Scenario5Debug in Release 3.5.
In release 3.6 it is ScenarioDebug5.

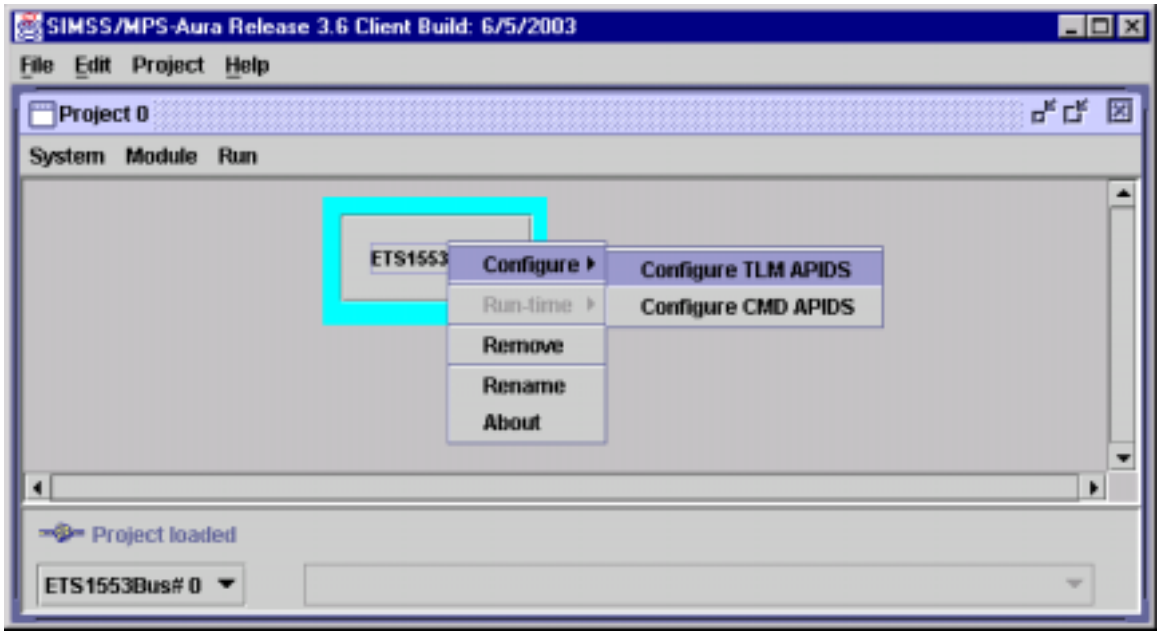
Furthermore, the Scenario debugging facility has been enhanced to show intermediate processing when evaluating IF and WHILE statements with compound arguments.

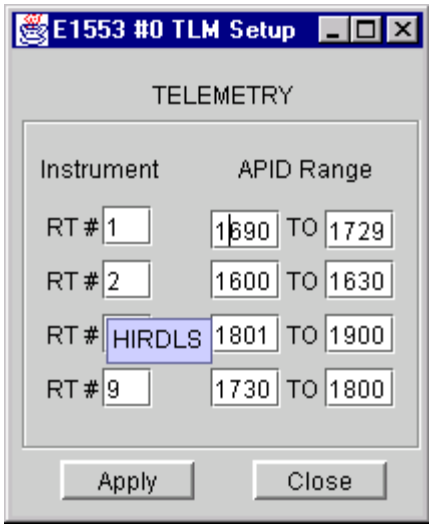
Project Save and Restore changes

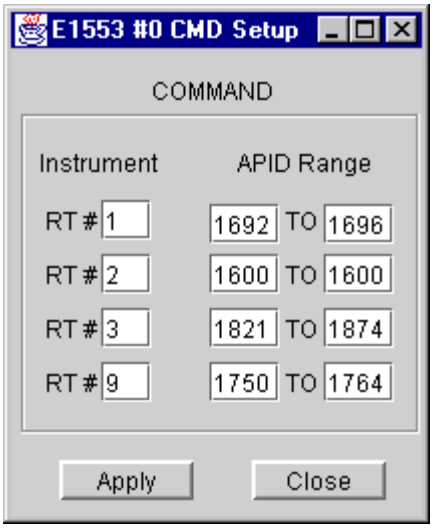
The Save /Restore Default and Extended options have been consolidated into one option. The new option has all the properties and advantages of the previous Extended option. All of the information needed to restore a Project is now saved in three files in the *Client\Save* folder.

ETS1553Bus module changes

The ETS1553Bus module user interface has been enhanced to allow the user more flexibility in configuring APID ranges for receipt and transmission of data. The user may now configure the command data receipt and telemetry data transmit APID ranges separately for each Remote Terminal (RT). See the following pictures for the default ranges.


SIMSS/MPS-Aura Release 3.6 Client Build: 6/5/2003
File Edit Project Help
Project 0
System Module Run
ETS1553
Configure
Run-time
Remove
Rename
About
Configure TLM APIDS
Configure CMD APIDS
Project loaded
ETS1553Bus# 0


E1553 #0 TLM Setup
TELEMETRY
Instrument
APID Range
RT # 1 1690 TO 1729
RT # 2 1600 TO 1630
RT # HIRDLS 1801 TO 1900
RT # 9 1730 TO 1800
Apply
Close


E1553 #0 CMD Setup
COMMAND
Instrument
APID Range
RT # 1 1692 TO 1696
RT # 2 1600 TO 1600
RT # 3 1821 TO 1874
RT # 9 1750 TO 1764
Apply
Close

Attachment D – Resolved Discrepancy Reports

In addition to the new capabilities, the following Discrepancy Report (DR) and Change Request (CR) have been closed by and are being delivered with SIMSS/MPS-Aura Release 3.6. The DR and CR are listed in the table below, which provides the DR/CR Number, Status, Severity, and a short description. A full description of each DR/CR follows the summary table. Complete information on all DRs/CRs may be accessed via the Internet at address http://edosultra30.gsfc.nasa.gov/ddts.

Summary of Closed Discrepancy Reports

Critical (Severity 1)	Urgent (Severity 2)	Routine (Severity 3)	Change Requests	Total
0	2	4	0	6

Status Definitions

N – New
A – Assigned Analysis
R – Analysis Entered
V – Assigned Verification
T – Tested
C – Closed
W – Withdrawn
P – Postponed
X – Duplicate

ETS No.	SMO No.	Type	Severity	Description
ETS0473	SMOdr18776	DR	2	Cannot efficiently restore telemetry to ETSF values.
ETS0478	SMOdr20621	DR	2	Deleting Log module Path can cause MPS crash.
ETS0480	SMOdr20903	DR	3	Continuous error msgs result from invalid Set display entry.
ETS00481	SMOdr20904	DR	3	Tlm Pkt Header display not showing 2nd header values for all APIDs.
ETS0482	SMOdr20955	DR	3	Too many chars entered into Control Pkt causes GUI crash.
ETS0483	SMOdr21114	DR	3	APID Status display occasionally shows no data.

DR: SMOdr18776 (ETS0473) Related NCR: Submitted: 021216
Status: NEW Class: ETS

Title: Cannot efficiently restore telemetry to ETSF values

SUBMITTAL INFORMATION

Project:	ETS
DR Type:	Problem
Rel/Ver:	3.3
Subsystem:	Aura
Module:	Simulator
Affected-Requirement:	
Test Phase:	acceptance test
Severity:	2
Date found:	021211
Location:	GSFC
Submitter:	Ernest Quintin
Organization:	ETS Dev Group
Phone number:	301-805-3649
Email:	equintin@csc.com

********** Problem (Added 021216 by equintin) **********
Please describe the problem you are experiencing below, including
what you did, what you expected to happen, and what actually happened:

After updating any telemetry points in the Front End MPS, there
is no efficient way to restore to the value received from ETSF.

DR: SMOdr20621 (ETS0478) Related NCR: Submitted: 030505
Status: NEW Class: ETS

Title: Deleting Log module Path can cause MPS crash

SUBMITTAL INFORMATION

Project:	ETS
DR Type:	Problem
Rel/Ver:	3.5
Subsystem:	Aura
Module:	Log
Affected-Requirement:	
Test Phase:	in-field use
Severity:	2
Date found:	030424
Location:	GSFC
Submitter:	Ernest Quintin
Organization:	ETS Dev Group
Phone number:	301-805-3649
Email:	equintin@csc.com

********** Problem (Added 030505 by equintin) **********
Please describe the problem you are experiencing below, including
what you did, what you expected to happen, and what actually happened:

If, during initialization, the user completely deletes the path
to the location where the log file should go, then clicks Apply,
the Server will crash.

The problem was first found by SIMSS personnel using the new
Log module operationally while testing other SIMSS components.

DR: SMOdr20903 (ETS0480) Related NCR: Submitted: 030528
Status: NEW Class: ETS

Title: Continuous error msgs result from invalid Set display entry

SUBMITTAL INFORMATION

Project:	ETS
DR Type:	Problem
Rel/Ver:	3.5
Subsystem:	Aura
Module:	Simulator
Affected-Requirement:	
Test Phase:	in-field use
Severity:	3
Date found:	030520
Location:	GSFC
Submitter:	Ernest Quintin
Organization:	ETS Dev Group
Phone number:	301-805-3649
Email:	equintin@csc.com

********** Problem (Added 030528 by equintin) **********
Please describe the problem you are experiencing below, including what you did, what you expected to happen, and what actually happened:

Entering an invalid mnemonic on the Display/Set Container Items display results in continuous error messages going into the Event Log. If the display is dismissed without clearing the invalid mnemonic, the simulator must be recycled to stop the log messages from appearing.

DR: SMOdr20904 (ETS0481) Related NCR: Submitted: 030528
Status: NEW Class: ETS

Title: Tlm Pkt Header display not showing 2nd header values for all APIDs

SUBMITTAL INFORMATION

Project:	ETS
DR Type:	Problem
Rel/Ver:	3.5
Subsystem:	Aura
Module:	Simulator
Affected-Requirement:	
Test Phase:	dev informal integ
Severity:	3
Date found:	030520
Location:	GSFC
Submitter:	Ernest Quintin
Organization:	ETS Dev Group
Phone number:	301-805-3649
Email:	equintin@csc.com

********** Problem (Added 030528 by equintin) **********
Please describe the problem you are experiencing below, including what you did, what you expected to happen, and what actually happened:

The Telemetry Packet Header display does not display Secondary Header values correctly for some APIDs. The GIRD instrument APIDs are not displayed correctly.

DR: SMOdr20955 (ETS0482) Related NCR: Submitted: 030529
Status: NEW Class: ETS

Title: Too many chars entered into Control Pkt causes GUI crash

SUBMITTAL INFORMATION

Project:	ETS
DR Type:	Problem
Rel/Ver:	3.5
Subsystem:	Aura
Module:	Simulator
Affected-Requirement:	
Test Phase:	system I&T
Severity:	3
Date found:	030527
Location:	GSFC
Submitter:	Ernest Quintin
Organization:	ETS Dev Group
Phone number:	301-805-3649
Email:	equintin@csc.com

********** Problem (Added 030529 by equintin) **********
Please describe the problem you are experiencing below, including
what you did, what you expected to happen, and what actually happened:

Attempted to start APID 1000 via the Control Packet window.
Erased three zeros instead of four and thus entered 01000.
The MPS Client crashed - Java Exception Error.

DR: SMOdr21114 (ETS0483) Related NCR: Submitted: 030602
Status: NEW Class: ETS

Title: APID Status display occasionally shows no data

SUBMITTAL INFORMATION

Project:	ETS
DR Type:	Problem
Rel/Ver:	3.5
Subsystem:	Aura
Module:	Simulator
Affected-Requirement:	
Test Phase:	in-field use
Severity:	3
Date found:	030515
Location:	Denver
Submitter:	Ernest Quintin
Organization:	ETS Dev Group
Phone number:	301-805-3649
Email:	equintin@csc.com

********** Problem (Added 030602 by equintin) **********
Please describe the problem you are experiencing below, including
what you did, what you expected to happen, and what actually happened:

This problem was originally reported by Tom Ha of Raytheon.

After MPS has been running for a while, the APID Status display
will be blank when brought up.

Attachment E – System Limitations

E.1 SIMSS/MPS-Aura Release 3.6 Limitations

The following limitations apply to SIMSS/MPS-Aura Release 3.6. Some of these are Discrepancy Reports (DRs) against SIMSS baseline products and have been recorded in their DR repository.

Problem Description	Workaround
The Scenario module will occasionally crash the simulator if it encounters multiple nested IF and WHILE statements. MPS DRs ETS0476 and ETS0477 were written.	There is no specific workaround. Users must attempt to devise workarounds specific to their script execution. The problems are being worked.
The Generic Container Buffer display is limited to 1400 bytes of data (= 700 words, or 350 double words). A request for more data than that will result in a display of 1400 bytes of information. *This is SIMSS Defect # 102.*	To view data that is beyond byte 1400 of the buffer, set the offset to 1400, or as required to view the data.
Certain APIDs are included in the PDB tlm_packet file without any Interval or Slot number information. MPS supplies a default Interval of one second and a default Slot number of zero. However, the packet timing appears to be less accurate than for those APIDs that have at least one Interval field filled in the tlm_packet file. More investigation is necessary before writing this as an MPS DR.	Explicitly supply an Interval when enabling an APID that has no non-zero Interval in the tlm_packet file.
The E1553Bus module will crash MPS if it is invoked on a PC that does not have a 1553 Bus interface board installed.	Avoid adding the E1553Bus module to any Project if the PC does not have a 1553 Bus interface board.
When converting 1750A parameter values to Engineering Unit Floating Point format, MPS rounds the result to six decimal places.	External calculations may be used to check the accuracy of the raw values transmitted in telemetry.

Attachment F - Release History Summary Matrix

Attached is the SIMSS/MPS-Aura simulator release history summary matrix, updated to reflect the Release 3.6 delivery. Modules inherited from the SIMSS baseline have the SIMSS Release Number, while the MPS-Aura modules ETSGS, ETSXtract, ETS1553Bus, and ETSAura have their current Release Number.

Release History Summary Matrix

System: **SIMSS/MPS-Aura**

Release Number		1.0	2.0	3.0 Beta	3.0	3.1	3.2	3.3	3.4	3.5	3.6			
Delivery Date		3/16/01	6/15/01	9/28/01	1/11/02	8/9/02	8/23/02	10/25/02	1/10/03	4/25/03	6/13/03			
Configuration Item	CI No.													
Core (Client)	1.1	4.0	4.1	5.0	6.0	6.0	6.0	7.0	7.0	8.0	8.0[1]			
Core (Server)	1.2	4.0	4.1	5.0	6.0	6.0	6.0	7.0	7.0	8.0	8.0			
ETSAura (Client) Formerly SCAURA	1.3	1.0	2.0	3.0	3.0	3.1	3.2	3.3	3.4	3.5	3.6			
ETSAura (Server) Formerly SCAURA	1.4	1.0	2.0	3.0	3.0	3.1	3.2	3.3	3.4	3.5	3.6			
ETSGS (Client) Formerly EOSGS	1.5	1.0	2.0	3.0	3.0	3.0	3.0	3.0	3.0	3.5	3.5			
ETSGS (Server) Formerly EOSGS	1.6	1.0	2.0	3.0	3.0	3.0	3.0	3.0	3.0	3.5	3.5			
IP Input (Client)	1.7	4.0	4.1	5.0	6.0	6.0	6.0	7.0	7.0	8.0	8.0			
IP Input (Server)	1.8	4.0	4.1	5.0	6.0	6.0	6.0	7.0	7.0	8.0	8.0			
IP Output (Client)	1.9	4.0	4.1	5.0	6.0	6.0	6.0	7.0	7.0	8.0	8.0			
IP Output (Server)	2.0	4.0	4.1	5.0	6.0	6.0	6.0	7.0	7.0	8.0	8.0			
Logging (Client)	2.1	4.0	4.1	5.0	6.0	6.0	6.0	7.0	7.0	8.0	8.0			
Logging (Server)	2.2	4.0	4.1	5.0	6.0	6.0	6.0	7.0	7.0	8.0	8.0			

[1] Re-compiled after SIMSS Rel. 8.0 to deploy enhancements desirable to MPS.

Delivery Date		3/16/01	6/15/01	9/28/01	1/11/02	8/9/02	8/23/02	10/25/02	1/10/03	4/25/03	6/13/03			
Configuration Item	CI No.													
Scenario (Client)	2.3	4.0	4.1	5.0	6.0	6.0	6.0	7.0	7.0	8.0	8.0[2]			
Scenario (Server)	2.4	4.0	4.1	5.0	6.0	6.0	6.0	7.0	7.0	8.0	8.0[2]			
Serial Input (Client)	2.5	4.0	4.1	5.0	6.0	6.0	6.0	7.0	7.0	8.0	8.0			
Serial Input (Server)	2.6	4.0	4.1	5.0	6.0	6.0	6.0	7.0	7.0	8.0	8.0			
Serial Output (Client)	2.7	4.0	4.1	5.0	6.0	6.0	6.0	7.0	7.0	8.0	8.0			
Serial Output (Server)	2.8	4.0	4.1	5.0	6.0	6.0	6.0	7.0	7.0	8.0	8.0			
TxFile (Client)	2.9	4.0	4.1	5.0	6.0	6.0	6.0	7.0	7.0	8.0	8.0			
TxFile (Server)	3.0	4.0	4.1	5.0	6.0	6.0	6.0	7.0	7.0	8.0	8.0[2]			
vcProcessor (Client)[3]	3.1		4.1	5.0	6.0	6.0	6.0	7.0	7.0	8.0	8.0			
vcProcessor (Server)[3]	3.2		4.1	5.0	6.0	6.0	6.0	7.0	7.0	8.0	8.0			
ETSXtract (Client)[4] Formerly EOSXtract	3.3							1.0	1.0	1.0	1.0			
ETSXtract (Server)[4] Formerly EOSXtract	3.4							1.0	1.0	1.0	1.0			
ETS1553Bus (Client)[4] Formerly E1553	3.5							1.0	2.0	3.0	3.1			
ETS1553Bus (Server)[4] Formerly E1553	3.6							1.0	2.0	3.0	3.1			

[2] Re-compiled after SIMSS Rel. 8.0 to deploy enhancements desirable to MPS.
[3] Added with Release 2.0
[4] Added with Release 3.3

Attachment G - Documentation References

The following documents have been employed as the main sources for direction and information in producing Release 3.6 of the SIMSS/MPS-Aura simulator.

Document	Location*
Earth Observing System (EOS) Common Spacecraft Program Interface Control Document between the EOS Aura Spacecraft and the EOS Ground System, Dated May 23, 2001, Document No. D27515, Preliminary (more commonly known as "The Spacecraft to Ground ICD")	1
Earth Science Data and Information (ESDIS) System Project, Appendix Z – Aura Spacecraft Interface with Control Center, Supplement to the EOS Aura Spacecraft to Ground ICD, January, 2003	1
Data Format Control Document for the Earth Observing System (EOS) Mission Operations Segment (EMOS) Project Database Volume 1: Aura Users Doc. No. 423-41-65, November 15, 2001	4
TRW, EOS Chemistry Spacecraft Flight Software Requirements Specification, ES-SDA-005, Rev. A, dated 23 August, 2000	4
TRW, EOS Chemistry Spacecraft Flight Software Requirements Specification, Appendix A, 1553B Bus Interface Control Document ES-SDA-005-01, Rev. C, dated June 19, 2002	6
TRW, EOS Aura Spacecraft Flight Software User's Guide, No.: D31189, version dated 15 September, 2000	4
TRW, EOS Aura Command Allocation Document, No.: D31174, Rev D, dated June 1, 2002	4
TRW, EOS Aura Telemetry Allocation Document, No.: D31175, Rev C, dated June 2, 2002	4
TRW, EOS PM-1 Spacecraft Equipment Specification for Transponder Interface Electronics, No.: EQ4-4957, latest version dated 11 February, 1999	4
TRW, Interface Control Document Between the Earth Observing System (EOS) Data and Operations System (EDOS) and the EOS Ground System (EGS) Elements CDRL B301, April 28, 2001	1
TRW, Interface Control document for the High Resolution Dynamics Limb Sounder (HIRDLS), Rev. D No.: D26477, dated July 20, 2001	3
TRW, Interface Control Document for the Microwave Limb Sounder (MLS), Rev C No.: D26475, dated March 15, 2002	3
TRW, Interface Control Document for the Ozone Monitoring Instrument (OMI) System, Rev. B No.: D26478, dated November 8, 2002	3
TRW, Interface Control Document for the Tropospheric Emission Spectrometer (TES), Rev. C No.: D26476, dated February 28, 2002	3

*See Location Legend

Consultative Committee for Space Data Systems, CCSDS 102.0-B-4: Packet Telemetry Blue Book, Issue 4, Nov. 1995	2
Consultative Committee for Space Data Systems, CCSDS 202.1-B-1: Telecommand Part 2.1 – Command Operations Procedures Blue Book, Issue 1, Oct. 1995	2
NASA, GSFC, Earth Observing System Data and Information System (EOSDIS) Test System (ETS) Level 4 Requirements for the MPS/Aura. Attachment G of the MPS/Aura Release 3.0 delivery package	5

Location Legend:

Number	Designation
1	http://romulus.gsfc.nasa.gov/ (secure site, password required)
2	http://ccsds.org/publications.html
3	Received via email from Aura Instrument Planning Group
4	Hardcopy from ESDIS Library
5	http://romulus.gsfc.nasa.gov/ETS/etsdoc.html
6	Received via email from PVVF personnel

Attachment H — Mission Systems Configuration Management Form

This attachment contains the completed Mission Systems Configuration Management (MSCM) form for the delivery of SIMSS/MPS-Aura Release 3.6.

Mission Systems Configuration Management Form

1. ORIGINATOR	2. ORGANIZATION	3. PHONE	4. E-MAIL ADDRESS
Estelle Noone	CSC	301-805-3653	enoone@csc.com

5. ELEMENT	6. INSTALLATION PRIORITY	7. TRACKING NUMBER (Assigned by CM Office)
ETS (SIMSS/MPS-Aura)	Routine	

8. SOURCE CHANGE REQUEST(S):

ETS delivery of MPS for EOS Aura (SIMSS/MPS-Aura)

9. APPROVALS

Element Manager _____ / /

Flight Ops Director _____ / /

Operations Manager _____ / /

10. DELIVERED SYSTEM (Check all that apply)

	Name	Version	Media Identification	Identification Date
☐ Hardware				
☒ Software	SIMSS/MPS-Aura	R3.6	CD-ROM	6/13/03
☐ Database				
☒ Documentation:				
SIMSS/MPS-Aura delivery package		N/A	via email	6/13/03
☐ Other				

11. CHANGE DESCRIPTION

Release 3.6 of SIMSS/MPS-Aura

12. ATTACHMENT(S): Check if YES ☒

Description: SIMSS/MPS-Aura Release 3.6 delivery package (cover letter with attachments) dated 6/13/03

13. CM OFFICE USE

	Location (Bldg/Room)	Slot location(s)
Hardware	/	
Media	/	
Documentation	/	

Installation date ____/____/____ CM Office Signature _____

Form MSCM (970327)